

REMARKS

Status of the Claims

Claims 1-6 are pending in the application, with Claims 1 and 4 being independent. Claims 1 and 4 have been amended. Support for the claim changes can be found in the original disclosure, for example in Figures 1-6 and the accompanying description, and therefore no new matter has been added.

Requested Action

Applicant respectfully requests the Examiner to reconsider and withdraw the outstanding rejections in view of the foregoing amendments and the following remarks.

Request for Telephone Interview

Applicant respectfully requests a telephone interview with the Examiner to discuss the issues raised in the outstanding rejection and the claim amendments and arguments made in this amendment. Therefore, if the Examiner picks up this case for examination before being contacted by the undersigned to schedule the interview, Applicant requests that the Examiner telephone the undersigned to schedule the interview.

Substantive Claim Rejections

Claims 1, 2, 4 and 5 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,812,191 (Orava et al.) in view of U.S. Patent No. 7,098,950 (Yamamoto et al.), and U.S. Patent No. 4,591,727 (Gaebelein et al.). Claims 3 and 6 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Orava et al. in view of

Yamamoto et al., and U.S. Patent No. 6,163,024 (Kozuka). In response, while not conceding the propriety of the rejections, independent Claims 1 and 4 have been amended. Applicant submits that as amended, independent Claims 1 and 4 are allowable for the following reasons.

Independent Claim 1 relates to an image pickup apparatus in which a pixel area, including a plurality of pixels each having a photoelectric conversion portion and a common output portion configured to sequentially amplify and output signals from the plurality of pixels included in the pixel area, is formed on a single semiconductor substrate. The apparatus comprises a control circuit and a power supply unit configured to effect power supply control of the common output portion independently of control of the power supply to the pixel area. If the photo-charge accumulation period of the photoelectric conversion portion is longer than a predetermined accumulation time, no power is supplied to the common output portion in a predetermined period after starting photo-charge accumulation in the photoelectric conversion portion and supply power to the common output portion before the end of the photo-charge accumulation period in the photoelectric conversion portion. If the photo-charge accumulation period of the photoelectric conversion portion is shorter than a predetermined accumulation time, power is supplied to the common output portion throughout the photo-charge accumulation period.

Claim 1 has been amended to recite that the control circuit is configured to control the power supply unit in accordance with a photo-charge accumulation period of the photoelectric conversion portion.

Claim 1 has been further amended to recite that the control circuit is configured to control the power supply unit to, if the photo-charge accumulation period of the

photoelectric conversion portion is longer than a predetermined accumulation time, supply no power to the common output portion in a predetermined period after starting photo-charge accumulation in the photoelectric conversion portion and supply power to the common output portion before the end of the photo-charge accumulation period in the photoelectric conversion portion.

Claim 1 has also been amended to recite that the control circuit is configured to control the power supply unit to, if the photo-charge accumulation period of the photoelectric conversion portion is shorter than a predetermined accumulation time, supply the power to the common output portion throughout the photo-charge accumulation period.

By this arrangement, a power supply unit can be controlled to effect power supply control of the common output portion independently of power supply control of the pixel area and so that different kinds of power supply control of the common output portion can be effected, depending on a specific condition of the photo-charge accumulation period of the photoelectric conversion portion, i.e., the length of the photo-charge accumulation period.

In contrast, the citations to Orava et al., Yamamoto et al., and Gaebelein et al are not understood to disclose or suggest a control circuit configured to control a power supply unit, which effects power supply control of a common output portion independently of power supply control of the pixel area, to exert different kinds of control of the power supply to the common output portion, depending on a specific condition of the photo-charge accumulation period of the photoelectric conversion portion, such as the length of the photo-charge accumulation period. Therefore, these citations are not understood to disclose or suggest that a control circuit is configured to control a power

supply unit, which effects power supply control of a common output portion independently of power supply control of the pixel area, to:

- if the photo-charge accumulation period of the photoelectric conversion portion is longer than a predetermined accumulation time, supply no power to the common output portion in a predetermined period after starting photo-charge accumulation in the photoelectric conversion portion and supply power to the common output portion before the end of the photo-charge accumulation period in the photoelectric conversion portion; and
- if the photo-charge accumulation period of the photoelectric conversion portion is shorter than a predetermined accumulation time, supply the power to the common output portion throughout the photo-charge accumulation period.

As is admitted at pages 4 and 5 of the Office Action, the citations to Orava et al. and Yamamoto et al. fail to explicitly disclose “a control circuit configured to effect control...to, if the photo-charge accumulation period of the photoelectric conversion portion is longer than a predetermined accumulation time, supply no power to the common output portion in a predetermined period after starting photo-charge accumulation in the photoelectric conversion portion and to supply power to the common output portion before the end of [[a]] the photo-charge accumulation period in the photoelectric conversion portion, and to, if the photo-charge accumulation period of the photoelectric conversion portion is shorter than a predetermined accumulation time, supply power to the common output portion throughout the photo-charge accumulation period”. For this reason, the Office Action cites column 3, lines 35-67 of the Gaebelein et al. patent as showing a solid state canner for a variable transport comprising this feature. But, this portion of the Gaebelein et al. patent is understood to merely disclose a) that if a document is traveling slower, a phase locked oscillator is operated at a slower frequency to generate array cycle

clock pulses at wider spaced time intervals, and b) since the exposure time (light integration time) increases in accordance with the wider spaced time interval of the generated clock pulses, there is a proportional increase in the analog output of a sense device, which is shifted out of the array through a shift register, so that this increased output is compensated for such that a digital signal from an A/D converter to which the analog output is input is multiplied by a smaller number.

There is not understood to be any disclosure in this passage, which is reproduced below, of a control circuit configured to control a power supply unit, which effects power supply control of a common output portion independently of power supply control of the pixel area, to effect different kinds of control of the power supply of a common output portion, depending on a specific condition of the photo-charge accumulation period of the photoelectric conversion portion, such as the length of the photo-charge accumulation period. And, as will be noted by reviewing the passage below, there is not understood to be any disclosure of a control circuit configured to control a power supply unit, which effects power supply control of a common output portion independently of power supply control of the pixel area, to a) if the photo-charge accumulation period of the photoelectric conversion portion is longer than a predetermined accumulation time, supply no power to the common output portion in a predetermined period after starting photo-charge accumulation in the photoelectric conversion portion and supply power to the common output portion before the end of the photo-charge accumulation period in the photoelectric conversion portion, and b) if the photo-charge accumulation period of the photoelectric conversion portion is shorter than a predetermined accumulation time, supply the power to

the common output portion throughout the photo-charge accumulation period, as recited by amended Claim 1:

In addition to responding to a count in integration counter 103, gate logic 105 responds to an output from the emitter amplifier 107 which amplifies the signals detected from emitter disk 24 by emitter sensors 26 and 28. In addition to being connected to and controlling integration counter 103, gate logic 105 is connected to four different multiplication factor registers 109. Gate logic 105 controls which multiplication factor is gated out as the integrate compensate value used by compensation and threshold logic 18 to compensate for the amount of light that has been allowed to reach array 12 between array cycle clock pulses. For example, if the document is traveling slower, the phase locked oscillator comprising integration counter 103 and gate logic 105 is operating at a slower frequency thereby, generating array cycle clock pulses at wider spaced time intervals. Accordingly, the digitized voltage signal from each charged coupled photo sensing device of array 12 must be multiplied by a smaller number so as to compensate for the increased exposure time which generated a proportional increased analog output voltage from each sense device. Each array cycle clock pulse is generated at the time that integration counter 103 is reset by the signal from gate logic 105. Each array cycle clock causes the analog voltages accumulated by each charge coupled device to be transferred in parallel to corresponding stages of a shift register. Thereafter, the photo sensitive coupled devices can again begin accumulating voltage proportional to light reflected from the document while the analog voltage levels in the charge coupled device shift register are shifted out of array 12 as shown in the varying amplitude pulse train of FIG. 1. The shift register is shifted by pulses from oscillator 101 which are gated through AND gate 125 under control of latch 123. Latch 123 is set to commence shifting when the integration counter 103 is reset in response to the array cycle clock pulse which loaded the shift register. Latch 123 is reset to suspend shifting when the integration counter 103 reaches count 1024. (column 3, line 35 through column 4, line 5)

If the Office continues to cite this passage to show the control circuit recited by amended Claim 1, Applicant respectfully requests that the Office explain in more detail, precisely how this passage discloses the claimed control circuit.

In addition, this reference is understood to disclose that the document 10 is moved in a smooth continuous motion by a drive motor 30 and a drive roll 22 and each time the document image source has moved a predetermined amount with respect to the array 12, an enabling signal in the form of an emitter pulse is generated by an emitter disk 24 and emitter sensors 26 and 28 (e.g., column 2 lines 32-38). Thus, the Gaebelein et al. patent is understood to merely teach that an analog signal that is integrated in an integration period corresponding to the traveling speed of the document 10 is transferred to the shift register as described above. There is not understood to be any disclosure of a control circuit configured to control a power supply unit, which effects power supply control of a common output portion independently of power supply control of the pixel area, to effect different kinds of power supply control of the common output portion, depending on the length of the photo-charge accumulation period, as recited by amended Claim 1. And there is not understood to be any disclosure of a control circuit configured to control a power supply unit, which effects power supply control of a common output portion independently of power supply control of the pixel area, to a) if the photo-charge accumulation period of the photoelectric conversion portion is longer than a predetermined accumulation time, supply no power to the common output portion in a predetermined period after starting photo-charge accumulation in the photoelectric conversion portion and supply power to the common output portion before the end of the photo-charge accumulation period in the photoelectric conversion portion, and b) if the photo-charge accumulation period of the

photoelectric conversion portion is shorter than a predetermined accumulation time, supply the power to the common output portion throughout the photo-charge accumulation period, as recited by amended Claim 1.

Since amended Claim 1 recites at least one feature not disclosed or suggested by the citations to Orava et al., Yamamoto et al., and Gaebelein et al., Applicant submits that the Office has not yet established a prima facie case of obviousness against amended Claim 1. Therefore, Applicant respectfully requests that the rejection of amended Claim 1 be withdrawn. And because Claim 4 has been amended in a similar manner (though it recites the supply of first and second power levels to the common output portion rather than supplying no power or power to the common output portion), it is submitted to be allowable for similar reasons. Therefore, Applicant respectfully requests that the rejection of amended Claim 4 be withdrawn.

The dependent claims are also submitted to be patentable, due to their dependency from the independent base claims, as well as due to additional features that are recited. Individual consideration of the dependent claims is respectfully solicited.

Conclusion

In view of the foregoing amendments and remarks, Applicant respectfully requests favorable reconsideration, withdrawal of the outstanding rejections, and passage to issue of the present application.

Applicant's undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our below-listed address.

Respectfully submitted,

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